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15 Abstract: This monograph seeks to evaluate the capability of a carrier battle group to conduct operational fires in support of a land campaign or major land operation. A brief explanation of operational art is presented to lay the framework in which the evaluation might be completed. The term operational fire is then examined in detail so that this combat function might be better understood and properly applied in support of a major operation. The carrier battle groups ability to conduct operational fire is then analyzed through examination of the historical precedence set during the Central Pacific Campaign of World War II. Finally, the evolution of doctrine associated with the carrier battle group is provided as the basis for which the capabilities and limitations of the carrier battle group as a source of operational fires is determined. After careful review of the definition of operational fire, the analysis of historical precedence and the examination of doctrinal evolution ; the capabilities/limitations of the carrier battle group reveal a continuing role for the carrier battle group in joint operations.

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Fires from the Sea: The Carrier Battle Group as a Source of Operational Fires

by

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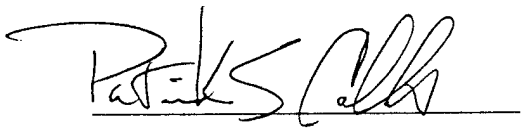
Commander United States Navy

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Joint Military Operations Department.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.



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Introduction

Since its inception, the naval service has played a fundamental role in the defense and advancement of our national interests. Whether in response to regional conflict, non-combatant evacuation, disaster relief or in combat operations, the need for the versatility, flexibility and power of a naval force is incontestable. Our naval service has been able to range the world's oceans, in support of the National Security Strategy, virtually uncontested for the past fifty years. Some have argued that, even in its heyday, the Soviet Navy never truly challenged our open ocean sovereignty but relied on their navy as a layer of defense against hostile aggression. Never-the-less, we designed and developed an open ocean war fighting strategy which has driven our doctrine, tactics, education and acquisition programs since World War II. The result was the rise of the world's most powerful navy.

The Navy then made the most significant ideological proclamation in recent years with the release of their epochal white paper "...From the Sea" and its refined expansion "...Forward From the Sea." In their very basic form, these white papers are a "fundamental shift away from open ocean warfighting on the sea towards joint operations conducted from the sea."[1] Why did we change the way we do business? The answer is simple. The world changed. The end of the Cold War closed a chapter in American foreign policy and transformed the face of the world.

Some argued that the white papers were merely politically tinged public relations ploys designed to diminish the perception by Congress that the Navy was less-than-enthusiastic towards the implementation of the Goldwater-Nichols Department of Defense Reorganization Act.[2] No doubt, the Goldwater-Nichols Act ushered in a restructuring of the entire Department of Defense and delivered consequences with which some are still wrestling. But more importantly, as the Berlin Wall began to fall and the Soviet threat diminished; national deficits, the questionable morality of unrestrained defense expenditures and the need of a large military came under congressional scrutiny. The result has been the "down sizing" of the military, reduction of defense dollars and reliance on Goldwater-Nichols to deliver a more efficient and effective joint force. The white papers are thus a response to a changing

post-Cold War world order, the requisite reformation of National Security Strategy and the Navy's supportive role in that strategy.

The logical extension of the visionary change espoused in the white papers is that the naval service must first assimilate joint warfighting into every facet of strategy, doctrine, and tactics. Our own naval doctrine states that we must be "committed to full partnership in joint operations...operating and fighting in concert with our Army and Air force."[3]

In fully evaluating our ability to operate as an integral part of the whole force, we face the challenge of rethinking our warfighting needs, organization and methodologies. "All communities in the naval service must demonstrate the adaptability and teamwork required to operationally implement its (the Navy's) concepts. Traditional roles for centerpiece platforms such as the carrier must be objectively and honestly evaluated."[4]

We can best evaluate the applicability of such platforms in a joint context by first understanding that "component of naval art concerned with the employment of forces and assets aimed to accomplish strategic or operational objectives in a given theater."[5] That component, known as operational art, has received considerable notice from the four services in recent years. Although it is not my intent to provide a tutorial on the origins of operational art, the concept must be defined to lay the framework for an evaluation of the carrier battle group in a joint role.

What is Operational Art?

Despite its historical foundation in the military arts, operational art is a concept which has only recently seen revival in naval thought and is therefore widely misunderstood. Although the term "operations" first appeared in European military writings as early as 1799, the fundamentals of operational art were developed throughout the 19th century as the size of armies, technology and society transformed the nature of war. The Soviets were the first to coin the term "operational art" in 1926 but the fact is, armies and navies of the world were practicing and refining their version of operational art well before World War I.[6] Within the U. S. Navy, operational art received its most widespread use during World War II. Initially

operating with a surface force depleted as a result of Pearl Harbor, conducting large scale campaigns and major operations in concert with joint and combined forces, the operational thinker emerged and ruled the day.

Although often confused with the operational level of war, operational art is not identical to the operational level of war. US Army doctrine writers feel "no specific level of command is solely concerned with operational art"[7] while Joint Pub 3-0, states "the primary focus at the operational level of war is on operational art."[8] Both, in fact, may be correct. Although the primary focus at the operational level (i.e. that level of war which links tactical employment of forces to strategic objectives) may be on operational art, it is more widely accepted that operational art envelopes national-strategic, and tactical levels of war, as well. All agree, however, that *operational art is the skillful employment of military forces to "attain strategic and/or operational objectives within a theater through the design, organization, integration, and conduct of theater strategies, campaigns, major operations and battles."*[9]

In today's ever-expanding battlespace in which time for decision-making continually decreases, we can understand the importance of sound "operational" decisions. And since operational art translates "the joint force commander's strategy into operational design and, ultimately, tactical action,"[10] the intricacies of joint warfighting require the proper application of operational art to effectively carry out a CINC's campaign plan. No sound application of forces and assets to attain operational or strategic objectives in a theater of war is possible without "operational thinking."

Very few officers have, or will have, the experience of commanding forces at the operational level. The vast experience of the majority of our officers is at the tactical level which further complicates the ability to think operationally. "A naval commander who thinks operationally will not seek a tactical victory despite the temptation, if thereby, the outcome of an entire major operation or even campaign is put in danger."[11] The prerequisite for operational thinking is full understanding of all aspects of operational art. The smart commander embraces the concept as a means to ensure victory in the joint battlespace.

Theater Functional Areas and Naval Critical Operational Capabilities

In war, operational art determines when, where, and for what purpose major forces will fight over time.[12] Thus operational art sets the objectives and the pattern for military actions. The theater commander sets operational, and possibly strategic objectives and determines the means by which he may achieve those ends. Before he employs those means, he must have a thorough understanding of his theater of operations. The existence of a theater implies the existence of a functional type of organization to provide an operational commander the wherewithal to conduct routine actions in peacetime and to plan, prepare, conduct and sustain combat operations within his area of responsibility.[13] Professor M. N. Vego has termed this organizational system the "theater functional areas" which include:

- Command, Control and Communications (C^3)
- Basing System
- Operational Reconnaissance and Intelligence
- Operational Fires
- Operational Logistics
- Operational Protection

A "mature" or developed theater will have all or a major portion of these functional areas in place during peacetime and each will be used by the successful theater commander to various degrees during the conduct of war. Although typically associated with the land campaign or "Air-Land battle", it can be argued that each of these functional areas is addressed in Navy doctrine, as well. The Navy refers to these functional areas as "critical operational capabilities" which include Command, Control and Surveillance (C^3 and Operational Reconnaissance and Intelligence); Battlespace Dominance (Operational Fires and Operational Protection); Power Projection (Operational Fires); and Force Sustainment (Operational Logistics).[14] The focus of this evaluation is the ability of the carrier battle group to provide operational fires in major, joint operations. Since some may confuse the navy term power projection with operational fires, it would serve us now to define the term operational fires.

Operational Fires—a definition.

Understanding operational fires is critical to the proper use of this combat capability. Before we can fully understand operational fires, the concepts of "depth" and "simultaneity" on the battlefield should be explained. In simultaneous operations, the intent is to bring to bear a concentrated force on the enemy in order to overwhelm and cripple enemy capabilities to resist. However, "simultaneity does not mean that all elements of the joint force are employed with equal priority or that even all elements of the joint force will be employed. It refers specifically to the concept of attacking appropriate enemy forces and functions in such a manner as to cause confusion and demoralization."[15]

Likewise, "joint force operations should be conducted across the full breadth and depth of the operational area, creating competing and simultaneous demands on enemy commanders and resources."[16] These "deep operations" diminish the enemy's freedom of action, reduce his flexibility and confuse his ability to coordinate offensive operations against friendly forces. Joint Pub 3.0 summarizes this concept in its explanation of interdiction. "Interdiction diverts, disrupts, delays or destroys the enemy's surface or subsurface military potential before it can be used effectively against friendly forces." [17]

The projection of power or "fires", whether in the close or deep battle area, whether lethal or non-lethal, is the primary means by which friendly forces impose their will over the enemy. Fires play a crucial role and are the key component of combat power at all levels of war, from tactical to strategic. We are most familiar with the concept of fires which primarily support maneuver forces in contact with enemy forces by suppressing or destroying enemy direct fire, indirect fire, and air defense systems. This type of fire is typically planned at the lowest level and passed up the chain of command for resolution and approval. Regardless of the means of delivery (sea, air or land based), those fires which support the "close battle", that are planned at the lowest level and passed up for resolution and approval are *tactical fires*. This is the domain of fire support.[18] Operational fires are distinctively different.

Is the interdiction concept of Joint Pub 3-0 then synonymous with the term operational fires? Some argue it is. "Interdiction at the operational level comprises attack helicopters, fighter/bomber aircraft, naval gunfire, sea-launched missiles and surface-to-surface rockets and missiles. Interdiction and operational fires should be considered synonyms with each other."[19] Although the terms are closely related, they do not mean the same thing. True enough, operational fires are primarily provided by theater air forces, either land or sea based, and have recently included sea and land launched cruise missiles and other precision guided munitions. The distinguishing factor is that in order for a fire to be considered operational, it must have an "operational effect." That is to say, the target must be operational in nature whose destruction or disruption will have an adverse impact on the enemy's campaign plan.

"In an important sense, operational fires are not fire support at all, but rather a coequal component of the operational scheme."[20] Operational fires focus on the accomplishment of one or more of the following tasks:

1) Facilitate maneuver to operational depths by creating exploitable gaps in the enemy's tactical defense.
2) Isolate the battlefield by interdicting enemy forces and logistical support.
3) Destroy and/or disrupt key operational facilities.

Operational fires seek to isolate current battles and to influence where, when, and against whom future battles will be fought. This is the essence of operational art—setting the stage for future battles. Operational fires, then, are *those fires normally planned by supported CINC staffs and executed by sea, air or land forces in order to facilitate maneuver to operational depths, isolate the battlefield or destroy/disrupt key operational facilities and functions with the intent to achieve a specified, high impact, operationally significant result that will adversely affect the enemy's campaign plan.*

The Carrier Battle Group, Operational Fires and the Pacific Campaign

Operation Forager—a case for study

Nimitz's Central Pacific campaign provides a convincing argument for the use of carrier battle groups in an operational fires role. As such, one major operation in that campaign will be analyzed to view the historic precedence for this capability.

By the end of 1943, the concept of a dual Allied advance across the Pacific was well established and understood. This strategy called for the advance of General MacArthur's troops along the northern coast of New Guinea to enter the Philippines at the southern island of Mindanao. Admiral Nimitz's force was to sweep across the Central Pacific to take the Marshalls, Truk, possibly another of the Caroline Islands and then on to the southern Marianas; Saipan, Tinian and Guam.[21] It is well known that General MacArthur objected to the Central Pacific campaign as it redirected troops and supplies which he felt could be better used in his Southwest Pacific campaign. It is less known that Nimitz was initially inclined to support MacArthur's single-line of advance strategy. After conferences on 27 and 28 January 1944, Admiral Nimitz and his staff had concluded that the Marianas need not be taken. Reeling from the shock of heavy American losses at Tarawa and knowing the conquest of the bigger, rugged Marianas islands would be more difficult without the assistance of Allied land-based air, Admiral Towers argued the bases in the Marianas were to only be used to conduct B-29 attacks on the Japanese empire and thus not critical to victory. Nimitz's staff felt that his forces would better be used in the Southwest-Pacific Campaign. In a scalding letter to Nimitz in early February, Admiral King criticized Nimitz's plan and refuted Admiral Towers' explanation for the object of the Marianas operation, "Of course, that was never the object. This was merely one of the results that would ensue from this operation which was to be taken to dry up the Carolines, facilitating the capture or neutralization of the Carolines and to speed up the clearing of the line of communications to the northern Philippine area..."[22] King saw the invasion of the Marianas as a means to cut off southward-flowing Japanese supplies and reinforcements. The Joint Chiefs prevailed, the two-pronged strategy was approved, and the operational plan for conquest of the Marianas, Operation Forager, began.

Admiral Spruance's Fifth Fleet comprised of forces including Vice Admiral Mitscher's Fast Carrier Task Force 58 and Vice Admiral Turner's Fifth Amphibious Force,

would conduct the invasion of Saipan, Tinian and Guam, in sequence. The invasion was to be carried out by marines, the 2nd and 4th Divisions for Saipan and Tinian, and the III Amphibious Corps (comprising the 3rd Division and the 1st Provisional Brigade) for Guam. Realizing Japanese defenses in the islands were formidable, (32,000 troops on Saipan, 12,000 on Tinian and at least 19,000 on Guam) they knew conquering the larger Marianas islands would require a major land operation. Two Army reserve divisions, the 27th and the 77th, would be used in land portions of the operation on Saipan and Guam, respectively. Rear Admiral "Close-in" Conolly commanding Task Force 53 was given the responsibility of delivering, landing and protecting the troops of III Amphibious Corps while Vice Admiral Turner would support the Saipan invasion force. The Americans were likewise aware the Japanese Mobile Fleet, which comprised 90% of the Japanese Combined Fleet, was positioned at Tawitawi in the Sulu Archipelago. Nimitz was eager for the Mobile Fleet to come out into the Pacific and thus offer itself for defeat.

On June 6, 1944, the date of the Normandy invasion on the opposite side of the globe, Task Force 58 led the way out of the Marshalls. It was followed by the Fifth Amphibious Force, comprising 535 ships carrying 127,000 troops.[23] On June 11, Japanese garrisons in the southern Marianas reported that they were under air attack—evidently from the approaching Task Force 58. On the 13th Admiral Lee's fast battleships, detached from the Fast Carrier Force, and continued the bombardment of Saipan and nearby Tinian from the sea. On the 14th, the old battleships and other fire-support vessels relieved Lee's battleships and began the pre-landing bombardment of Saipan's west coast. The bombardment continued through the 14th and was resumed at first light on the 15th, while aircraft from escort carriers bombed shore defenses.[24] At 0844 on the 15th, Admiral Turner reported that the invasion of Saipan had begun. By the end of the day over 20,000 marines were ashore.

Meanwhile, naval air-search operations conducted by aircraft of Task Force 58 had turned up no evidence of the Japanese Mobile Force. By the evening of June 10 however, the submarine *Harder* sighted a battleship-cruiser force departing Tawitawi on a southerly course. On the 15th, the submarine *Flying Fish* reported the Mobile Fleet altering course

from San Bernadino Strait eastward into the Philippine Sea. Knowing the Japanese pension for complex divisional type operations, CINCPAC saw the convergence of the Mobile Fleet and the battleship-cruiser force as his chance to destroy the remainder of the Japanese Fleet. Spruance, anticipating a major battle, signaled that the invasion of Guam, scheduled for the 18th, was to be postponed.

Through intelligence sources, the Americans knew quite a bit about the Mobile Fleet. Its commander, Vice Admiral Ozawa, would bring to bear 9 fast carriers with over 400 aircraft and between 50 and 60 ships. By comparison Mitscher would have 15 fast carriers and more than twice as many aircraft and ships as Ozawa. In addition, his aviators would be far better trained. Nevertheless, Ozawa had certain advantages. Steaming easterly into the trade winds, he would be able to launch and recover aircraft while advancing on the enemy. He could also expect assistance from Japanese planes based on Guam, Rota and Yap to execute a scheme of shuttle-bombing the American forces. The CINCPAC staff felt Mitscher's best bet was to steam westward and encounter the Mobile Fleet at a range from Guam that would negate the possibility of shuttle-bombing. Spruance chose to keep Mitscher close to Guam to protect the landing force, Task Force 53, which was now steaming in circles north of the island as a result of the invasion postponement.

The resultant Battle of the Philippine Sea, including what is referred to as the Marianas Turkey Shoot, was fought on 19 and 20 June. Spruance's decision to keep Mitscher close to Guam allowed him to strike the airfields on the islands with his bombers, frustrating Ozawa's shuttle-bombing attempts, and use his fighter aircraft in concert with anti-aircraft fire to achieve spectacular success against Japanese naval aviation. Although only 5 of the 9 Japanese carriers were destroyed or damaged in that battle, the air arm of the Japanese Navy was eradicated; of the 437 aircraft on the 9 Japanese carriers, 35 remained. There would be no chance to train replacement pilots. Although the Japanese Fleet was now extremely vulnerable without air support, Spruance chose not to pursue the retreating Mobile Fleet and destroy it. The invasion of Guam and Operation Forager continued as planned.

The Carrier Battle Group as a Source of Operational Fires

Historical Analysis

In analyzing Forager, it can be seen that with the weapons of the day, carrier aircraft and fast battleships, the Fifth Fleet's carrier battle group provided the operational fires by which amphibious and land forces achieved their operational objective. These operational fires were planned and executed from top down. Admiral King first directed Nimitz to occupy the Marianas to interdict Japanese sea lines of communication and to secure bases from which long-range air attacks against Japan could be launched.[25] Nimitz passed on the mission to the operational commander, Admiral Spruance, who formulated a plan which incorporated extensive use of naval air and gunfire to shape the battlefield, exploit enemy vulnerabilities and neutralize enemy capabilities. After experiencing devastating losses of American marines and soldiers at Tarawa, Nimitz and Spruance were convinced that the amphibious oparea and battlefield must be shaped for the tactical commander's use.

Prior to entering the amphibious oparea, Task Force 58 delivered precision air strikes. These air strikes, which were devastatingly effective, were conducted with the objective of shaping the battlefield for the approaching amphibious force. Admiral Lee's fast battleships continued bombardment of the operational objective area, seizing upon the offensive which carrier aircraft established. Every commander was dedicated to the task of delivering operational fire to interdict enemy maneuver, isolate the battle field and destroy operational functions. So devoted to the task of battlefield preparation was Admiral Conolly, that he vowed to "get the troops ashore standing up."[26]

For two weeks prior to the invasion, Admiral Conolly's surface group conducted near-continuous bombardment of shore facilities in preparation for the invasion. Underwater demolition teams spent four days preparing the battlefield under cover of landing craft and smoke. Some 640 obstacles were blown off Asan Reef and 300 off Agat. Cover from naval and air gunfire was so complete that only one man was lost in the pre-landing operation.[27]

Conolly's operational fires were so effective that the ranking officer of the surrendering Japanese garrison reported that, before the invasion, naval gunfire had:

1) Completely destroyed all construction of ordinary simple buildings and 50% of all hardened/permanent positions.
2) Completely destroyed all field positions hit by shells including all naval gun emplacements in the open and 50% of the gun emplacements in caves.
3) Destroyed over 50% of all installations built in the seashore area.
4) Communications installations were not damaged but had to be moved to dead spaces where they could not receive direct hits.[28]

Operational centers of gravity were also precisely selected and addressed. Initially, Spruance recognized that the enemy's center of gravity were the collective Japanese garrisons on the islands and based his operation on attacking that hub of strength through isolation. As Ozawa's Mobile Fleet approached, Spruance knew the center of gravity shifted to the Japanese Fleet and redirected his efforts. Once his own forces decimated the Mobile Fleet, he once again shifted his focus of operational fires to the land-based Japanese forces which he knew he must conquer to attain his operational objective of "occupying the Marianas."

Spruance's forces, dedicated to the operational objective, continued with the invasion of the Marianas achieving unequivocal success. His dismantling of the Japanese center of gravity, the island garrisons, was accomplished through systematic employment of own force capabilities and the attack on enemy vulnerabilities Though individually strong, the Japanese garrisons could not mutually support one another if Spruance could establish sea control and air superiority. Once attained, the operational objective area was isolated, ensuring freedom of action and allowing sequential defeat of each of the three Japanese garrisons. The massive application of Mitscher's, Lee's and Conolly's operational fires to destroy high value targets such as Japanese airfields and aircraft as well as the use of overwhelming combat power neutralized the Japanese garrisons. By 11 August, 63,000 Japanese troops were killed or captured; the Americans were provided air bases from which they could strike the Japanese mainland some 1,500 miles to the north; Japanese sea lines of communication to the south were cut; and the Japanese naval base at Truk was neutralized.[29] Eventually, the occupation

of the southern Marianas would have strategic effects on the war with Japan. Nearly one year after occupation, long-range bombers were launched from Tinian airfield on 6 and 9 August 1945. They delivered the first atomic weapons to their targets of Hiroshima and Nagasaki.

Carrier Doctrine and Operational Fires

To fully understand the role of the carrier battle group as a source of operational fires, it is necessary to first view the evolution of doctrine associated with the aircraft carrier. Like most conventional arms of the military, such as the infantry and the cavalry, the role of the carrier has continually evolved throughout history. This evolution is a result of technological development and the continuous change in the nature of warfare. In its primary stage of development, nearly 80 years ago, the aircraft carrier and its organic airwing were used as "scouts" or long range reconnaissance assets in support of the capital ship of the day, the formidable battleship. Aircraft from the carrier would range out, able to cover great expanses of ocean in a short period of time, and locate the main body of the enemy fleet so that friendly forces could select the time and place when tactical engagement was advantageous.

On December 7, 1941, the role of the aircraft carrier changed forever. The Pacific battleship fleet, moored in Pearl Harbor, was nearly eliminated and with it sank decades of naval doctrine. The aircraft carrier, by chance, was thrust into the role of capital ship. Captain R. C. Rubel's monograph, "Aircraft Carriers, Doctrine, and the Operational Art", explains that once there was a large enough force of carriers produced, our pattern of carrier operations, in fact, began to reflect capital ship doctrine. This capital ship doctrine was founded on three basic rules which had existed since the days of sail.

1) Capital ships should be concentrated and their operations focused on the main enemy fleet.
2) Capital ship fleets should not enter into a pitched engagement with land forces without substantial superiority in numbers and firepower.
3) Capital ship fleets should not sacrifice mobility by tying their operations to a land battle.[30]

Captain Rubel goes on to cite the evolution of other doctrinal roles for the carrier including: strategic nuclear deterrent platform, a role assumed by carrier battle groups after World War II and throughout the Cold-War period; the role of "floating airfield" in which the carrier provides aircraft to carry out the same functions as land-based air, including air superiority and air interdiction; the role as a "gunboat" in which a single carrier group races around the world's oceans, uncontested by other navies, to put out diplomatic brush fires; and a newly emerging role as the air combat element of the Marine Air-Ground Task Force.[31]

Conclusions—The Capability for Fires

The dilemma naval leadership has always faced is that the aircraft carrier and its battle group fulfills *all* of the doctrinal roles which Captain Rubel so deftly describes. More importantly, the carrier battle group can be and often times *is* the sole source of operational fires in *each* of these roles. The perplexing issue, one with which most naval aviators concern themselves, is that these doctrinal roles are often times conflicting thus making it difficult for aviators to educate and train themselves in the varied roles. Should we restrict ourselves to one doctrinal role? Absolutely not. The beauty of the carrier battle group lies in its versatility and power.

The capital ship role of the carrier is best suited to sea control operations while the role of strategic deterrent platform is not applicable in today's post Cold-War era. Neither fits in further discussions of operational fires.

As a "floating airfield" the aircraft carrier and accompanying cruisers, destroyers and attack submarines deliver manned aircraft and unmanned cruise missiles to sufficient depth, synchronized in space and time to interdict enemy lines of reinforcement, logistics and retreat. Moreover, they provide both lethal and non-lethal means of destroying or disrupting enemy operational facilities and functions. In this role, cruisers, destroyers and attack subs of the battle group are best suited in striking fixed operational facilities and headquarters in the "deep battle" with precision munitions.

In its role as a "gunboat", the carrier and its accompanying battle group are able to deliver operational fires which shape the battlefield, facilitating maneuver to operational depths, isolating the enemy and/or destroying and disrupting operational facilities and functions. In this role, the carrier battle group must assume battlespace dominance and would normally be engaged with a land-based power with inferior firepower; thus adopting some of the rules of the capital ship.

In their emerging role as Air Combat Element of the MAGTF, the carrier battle group must first deliver the operational fires required to isolate the battlefield, facilitate maneuver to operational depths and destroy or disrupt enemy operational functions. Once established, land-based airfields must be secured so that marine aviators may provide close air support so crucial to the marine concept of maneuver warfare.

Some Employment Limitations

As with nearly every weapon system platform, there are restrictions and limitations for the use of the carrier battle group as a source of operational fires. First and foremost is the finite number of weapons associated with a carrier battle group. Due to space restrictions there are typically 80 aircraft aboard even the largest class of carrier. Of those 80 aircraft, the typical mix of support and fighter aircraft allows, at best, approximately 45-50 attack aircraft to be utilized in a strike or operational fires role. Likewise, even with two Aegis class cruisers, two Arleigh Burke class destroyers and one Los Angeles class attack submarine per battle group, there are also a limited number of Tomahawk Land Attack Missiles which can be utilized against fixed enemy positions and operational facilities. The entire arsenal of TLAM's can, in fact, be depleted within minutes. No doubt it is an impressive array of firepower but even so, the force of a single carrier battle group pales in comparison to the numbers of land-based aircraft and precision munitions which can be brought to bear by large scale land forces as we knew in Desert Storm.

Secondly, even mobile and self-sustaining forces such as carrier battles groups become vulnerable at some point. Although there are few forces on earth which can match our Navy's

ability to conduct underway replenishment, it is inevitable that every ship must conduct replenishment operations. Surface ships are extremely vulnerable during these periods of replenishment. Although most units would conduct these replenishment operations in some safe area, away from combat zones, transit to and from those safe areas take the unit from the scene of action and out of the battle. Carriers face another vulnerability period, that time frame when it must steam along a steady course into the wind to launch and recover aircraft. Regardless of the advances in catapult design, the carrier is slave to the wind. If that wind comes from an inconvenient direction, the carrier must reposition itself to launch and recover its aircraft.

Finally, the operational limits of an aircraft carrier are the root cause of role incompatibilities "...carriers must be used with due regard to the rules for capital ships if there is a land based threat roughly equal to a carrier force's total offensive and defensive power."[32] That is, the carrier battle group must:

1) First establish sea control before it can offer support to the land campaign. A naval force is of little use to the land campaign if it is continually faced with protecting itself from attack.
2) Establish superiority in numbers and firepower if it hopes to achieve any success against a land-based enemy. Engaging a land-based enemy, afforded with plentiful reinforcements and supplies, the carrier battle group is unable to maintain the pace of resupply as its land-based foe.
3) Optimize maneuver and surprise to the maximum extent possible when engaging a land-based enemy. Periods of vulnerability should be chosen by rather than dictated to the operational commander.

Final Thoughts

The navy's centerpiece platform, the aircraft carrier, and its accompanying battle group includes and brings each of the functional areas, described by Professor Vego, (C^3, Operational Reconnaissance and Intelligence, Operational Fires, Operational Logistics and Operational Protection) into play continually during peacetime and conflict. They are the *means* by which the navy achieves its operational and strategic objectives. They allow the

autonomous action, versatility and power for which the carrier battle group is known. These capabilities/functional areas translate easily to the joint battle.

However, before the Navy can be taken seriously in its proclamation for joint operations it must first begin education of its officer corps in the principles of the operational arts. It is here that the navy officer can best grasp the concept of joint operations in support of a large scale campaigns. To begin, officers within the naval service must understand each other's doctrine, tactics, capabilities and limitations. It hardly does the Navy credit in the joint arena when Navy officers are ignorant of Marine Corps doctrine and vice versa.

Naval leadership must honestly reevaluate their role in joint military operations, as well. There is no doubt that we will all be operating with smaller forces. The Navy is not always the answer. It is not meant to be. Each of the services brings to bear distinct and impressive capabilities which must be synchronized to obtain the desired effect and efficiency.

The continuous evolution of warfare as well as technological advances in C^3 and weaponry have had irreversible effects on the size and shape of the battlefield. Today's carrier battle group can see farther, assimilate information quicker and strike deeper, with greater precision, into the enemy's battlespace than ever before. With the continuous evolution of warfare, centerpiece platform doctrine must be periodically evaluated—the sanity check. Does the doctrine make sense for the platform? Does it fit into joint doctrine?

Although difficult in light of our budgetary process, our focus must shift from saving the carrier battle group from the budget ax, to how we can best employ its versatility. Our investment of scarce defense dollars into carriers and supporting battle groups has been prudent and far sighted. We should stop second guessing ourselves. The carrier is a versatile, powerful weapon system. It fits nicely in support of joint warfighting strategies. The carrier battle group easily adjusts to varied roles making it equally indispensable in diplomacy and combat. Barring any unforeseen technological leap, it will remain so for a long time to come.

Endnotes

[1] Department of the Navy, White Paper, "...From the Sea", Washington D. C., 1993, p. 3.
[2] Hayes, Brad C., "Keeping the Naval Service Relevant", U. S. Naval Institute Proceedings, October, 1993, p. 58. CAPT Hayes postulates that while the most obvious answer is that the white paper is the naval services' response to the changing post-Cold War strategic landscape, there are other more subtle initiates for "...From the Sea."
[3] Department of the Navy, Naval Doctrine Publication 1, "Naval Warfare", Washington D. C. March, 1994, p. 24.
[4] Hayes, Robert L., "Operational Art in the Littorals", Newport, RI Naval War College, June 1994, p.16.
[5] Vego, Milan N., Professor, Joint Military Operations, Naval War College, "Naval Operational Art" (Draft), January 1995. Professor Vego's lectures and essays have become the core of the Naval War College's Joint Military Operations curriculum and have been discussed in various forums.
[6] Ibid.
[7] Department of the Army, FM 100-5, "Operations", Washington D. C., June 1993, p.6-2.
[8] Joint Chiefs of Staff, Joint Pub 3-0, Doctrine for Joint Operations", Washington D. C., September 1993, p. II-3.
[9] FM 100-5 and Joint Pub 3-0.
[10] Joint Pub 3-0.
[11] Professor M. N. Vego p.18.
[12] FM 100-5, p. Glossary-6.
[13] Vego p. 19
[14] NDP-1. p. 61.
[15] Joint Pub 3-0. p. III-14.
[16] Ibid. p. III-15.
[17] Joint Pub 3-0. p. GL-8.
[18] Hammond, Charles O., "Operational Fires and Unity of Command", School of Advanced Military Studies, Fort Leavenworth, KS, June 1990, p. 4.
[19] McCracken, Matthew T., "Understanding Operational Fires and Interdiction", Naval War College, Newport RI, February 1993, p. 2.
[20] Department of the Army, FM 100-6, "Large Unit Operations", Washington D. C., (coordinating draft) p. 3-16.
[21] Potter, E. B., Nimitz, Naval Institute Press, Annapolis, MD, 1976, p. 279.
[22] Ibid. p. 283.
[23] Ibid. p. 296.
[24] Ibid. p. 297.
[25] Hayes, Robert L. p. 10.
[26] Farrell, Don A. p. 69.

[27] Farrell, Don A., The Pictorial History of Guam—Liberation-1944, Micronesian Productions, Tamuning, GU, 1984, p. 20.
[28] Ibid. pp. 22-23.
[29] Hayes, Robert L. p. 12.
[30] Rubel, Robert C., "Aircraft Carriers, Doctrine and the Operational Art", unpublished monograph, Newport, RI, April 1995, p. 1.
[31] Rubel, pp. 2-3.
[32] Rubel, p. 4.

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